WORKSHEET

# F2.5 Count-controlled loops: for

Decisions and loops · GCSE · OCR J277 2.2.1, AQA 8525 3.2.2, Edexcel 1CP2 6.2.2 · about 15 min

Name _____ Class _____ Date _____

## What this lesson is about

range, the loop variable, and repeating a known number of times.

- for and range
- Counting from zero
- The loop variable is useful
- Loops and decisions together

## Questions

**9 marks in all**

**1.** What does this program print? [1 mark]

```
for i in range(4):
    print(i)
```

**2.** What does this program print? [1 mark]

```
for n in range(1, 4):
    print(n, n * n)
```

**3.** What does this print? `total = 0` then `for i in range(5): total = total + i`, then `print(total)` [1 mark]

**4.** A square has four sides. Which loop drives it? [1 mark]

- ☐ **A** `for i in range(4):` with forward and turn_right(30, angle=90) inside
- ☐ **B** `for i in range(3):` with forward and turn_right(30, angle=90) inside
- ☐ **C** `for i in range(90):` with forward inside
- ☐ **D** `for i in 4:` with forward and turn_right(30, angle=90) inside

**5.** How many times does the block under `for i in range(10):` run? [1 mark]

**6.** Put the lines in order to print corner 1, corner 2, corner 3. [1 mark]

Number the lines 1 to 3 to put them in the right order.

___ `for i in range(3):`

___ `print("corner", corner)`

___ `corner = i + 1`

**7.** What does this program print? [1 mark]

```
for n in range(0, 20, 5):
    print(n)
```

**8.** In OCR's Reference Language, `for i = 1 to 5 ... next i`. How many times does the loop run? [1 mark]

**9.** What does AQA call a count-controlled loop? [1 mark]

- ☐ **A** Definite iteration
- ☐ **B** Indefinite iteration
- ☐ **C** Selection
- ☐ **D** Recursion

## The task: count the corners

Drive a square of 30 cm sides with a `for` loop, printing `corner 1`, `corner 2`, `corner 3`, `corner 4` as you go, and finish facing the way you started.

```
# the two lines every program starts with: the commands, then the robot
from bugbot import *
connect()

for i in range(4):
    forward(60, distance=30)
```

**Plan your program here, then type it in and press Run.**

**Do it on the robot**

www.bugbotlab.com/learn/f2-5-count-controlled-loops-for/

The simulator checks it and tells you when it passes. Nothing to install, no account.

## Challenges

1. Draw a triangle with a `for` loop (three sides, `turn_right(30, angle=120)`).
2. Blink the LED five times using `wait(0.2)` inside a loop.
3. Print the 7 times table, from 7 to 70, with one loop.